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- European Patents Fulltext (File 348)
- French Patents (File 371)
- German Patents Fulltext (File 324)
- IMS Patent Focus (File 447, 947)
- INPADOC/Family and Legal Status (File 345)
- JAPIO - Patent Abstracts of Japan (File 347)
- LitAlert (File 670)
- U.S. Patents Fulltext (1971-1975) (File 652)

- U.S. Patents Fulltext (1976-present) (File 654)
- WIPO/PCT Patents Fulltext (File 349)
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New features available in the latest release of DialogLink 5 (August 2006)

- Ability to resize images for easier incorporation into DialogLink Reports
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- Ability to set up Dialog Alerts by Chemical Structures and the addition of Index Chemicus as a structure searchable database
- Support for connections to STN Germany and STN Japan services

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```
? Help Log On Msg
           *** ANNOUNCEMENTS ***
                  ***
*** FREE FILE OF THE MONTH (May) ABI/INFORM(File 15)
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in your search results, saving you time in obtaining the file
histories you need. See HELP FILEHIST for more information about
how to use the link and a list of files that contain the link.

NEW FILE
***File 457, The Lancet(R)
                    ***
RESUMED UPDATING
***File 523, D&B European Financial Records
                    ***
RELOADS COMPLETED
***File 662, TRADEMARKSCAN(R) - Austria
***File 669, TRADEMARKSCAN(R) - Japan
***File 678, TRADEMARKSCAN(R) - Norway
                    ***
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***File 388, PEDS: Defense Program Summaries
***File 588, DMS-FI Contract Awards

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Connected to Dialog via SMS004231777

? b 155 biosci medicine 399
[File 155] **MEDLINE(R)** 1950-2009/May 22
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[File 5] **Biosis Previews(R)** 1926-2009/May W3
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[File 28] **Oceanic Abstracts** 1966-2009/Jun
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[File 34] **SciSearch(R) Cited Ref Sci** 1990-2009/May W3
(c) 2009 The Thomson Corp. All rights reserved.

[File 35] **DISSERTATION ABS ONLINE** 1861-2009/APR
(c) 2009 PROQUEST INFO&LEARNING. All rights reserved.

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(c) 2008 Congressional Information Service. All rights reserved.
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[File 41] **Pollution Abstracts** 1966-2009/Jul
(c) 2009 CSA. All rights reserved.

[File 44] **Aquatic Science & Fisheries Abstracts** 1966-2009/Jun
(c) 2009 CSA. All rights reserved.

[File 45] **EMCare** 2009/May W3
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(c) 2009 CAB International. All rights reserved.
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(c) 2002 AEA Techn Env. All rights reserved.
**File 110: This file is closed (no updates)*

[File 135] **NewsRx Weekly Reports** 1995-2009/May W2
(c) 2009 NewsRx. All rights reserved.

[File 136] **BioEngineering Abstracts** 1966-2007/Jan
(c) 2007 CSA. All rights reserved.
**File 136: This file is closed.*

[File 143] **Biol. & Agric. Index** 1983-2009/Apr
(c) 2009 The HW Wilson Co. All rights reserved.

[File 144] **Pascal** 1973-2009/May W4
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[File 154] **MEDLINE(R)** 1990-2009/May 22
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(c) 2009 BLHCIS. All rights reserved.

[File 172] **EMBASE Alert** 2009/May 25
(c) 2009 Elsevier B.V. All rights reserved.

[File 185] **Zoological Record Online(R)** 1864-2009/Jun
(c) 2009 The Thomson Corp. All rights reserved.

[File 357] **Derwent Biotech Res.** _1982-2009/Apr W3
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(c) 2009 Reed Business Information Ltd. All rights reserved.

[File 370] **Science** 1996-1999/Jul W3
(c) 1999 AAAS. All rights reserved.
**File 370: This file is closed (no updates). Use File 47 for more current information.*

[File 391] **Beilstein Database - Reactions** 2008/Q2
(c) 2008 Beilstein GmbH. All rights reserved.

[File 434] **SciSearch(R) Cited Ref Sci** 1974-1989/Dec
(c) 2006 The Thomson Corp. All rights reserved.

[File 457] **THE LANCET 1992-2009/May W3**
.2009 Elsevier Limited. All rts reserved. All rights reserved.

[File 467] **ExtraMED(tm)** 2000/Dec
(c) 2001 Informania Ltd. All rights reserved.

[File 138] **Physical Education Index** 1990-2009/Jun
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[File 149] **TGG Health&Wellness DB(SM)** 1976-2009/May W1
(c) 2009 Gale/Cengage. All rights reserved.

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[File 399] **CA SEARCH(R)** 1967-2009/UD=15022
(c) 2009 American Chemical Society. All rights reserved.
**File 399: Use is subject to the terms of your user/customer agreement. IPCR/8 classification codes now searchable as IC=. See HELP NEWSIPCR.*

[File 444] **New England Journal of Med.** 1985-2009/May W3
(c) 2009 Mass. Med. Soc. All rights reserved.
**File 444: Despite the gap in UDs, the file is complete and up to date.*

```
?  s (collagen or (Gly-X-Y) or (Gly-Xaa-Yaa))(n20)(disulfide or disulphide or cys or
cysteine or cystine)

Processing

       915877   COLLAGEN

           22   GLY-X-Y

            5   GLY-XAA-YAA

       362188   DISULFIDE

        37915   DISULPHIDE

       147597   CYS

       635501   CYSTEINE

        69488   CYSTINE

S1       7311   S (COLLAGEN OR (GLY-X-Y) OR (GLY-XAA-YAA))(N20)(DISULFIDE OR DISULPHIDE
OR CYS OR CYSTEINE OR CYSTINE)


?  s s1 and homotrimer

         7311   S1

         3294   HOMOTRIMER

S2         47   S S1 AND HOMOTRIMER
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?  rd
>>>W:  Duplicate detection is not supported for File 391.
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S3          21   RD  (UNIQUE ITEMS)


?  s s3 and py<=2004
Processing
Processing
Processing
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Processing
Processing
Processing
Processing
Processing
Processing
Processing
Processing
Processing
>>>W:  One or more prefixes are unsupported
  or undefined in one or more files.
            21   S3
     151139451   PY<=2004
S4          12   S S3 AND PY<=2004


?  t s4/medium/all
```

4/3/1 (Item 1 from file: 155)
Fulltext available through: STIC Full Text Retrieval Options
MEDLINE(R)
(c) format only 2009 Dialog. All rights reserved.
15557976 **PMID:** 14516194

Procollagen VII self-assembly depends on site-specific interactions and is promoted by cleavage of the NC2 domain with procollagen C-proteinase.

Colombo Morgana; Brittingham Raymond J; Klement John F; Majsterek Ireneusz; Birk David E; Uitto Jouni; Fertala Andrzej

Department of Dermatology and Cutaneous Biology, Thomas Jefferson University, Philadelphia, Pennsylvania

19107, USA.
Biochemistry (United States) Oct 7 **2003** , 42 (39) p11434-42 , **ISSN:** 0006-2960--Print **Journal Code:** 0370623
Contract/Grant No.: P01AR38923; AR; NIAMS NIH HHS United States; R01AR048544; AR; NIAMS NIH HHS United States
Publishing Model Print
Document type: Journal Article; Research Support, U.S. Gov't, P.H.S.
Languages: ENGLISH
Main Citation Owner: NLM
Record type: MEDLINE; Completed

4/3/2 (Item 2 from file: 155)
Fulltext available through: STIC Full Text Retrieval Options
MEDLINE(R)
(c) format only 2009 Dialog. All rights reserved.
15473291 **PMID:** 12898697
The role of cystine knots in collagen folding and stability, part II. Conformational properties of (Pro-Hyp-Gly)n model trimers with N- and C-terminal collagen type III cystine knots.

Barth Dirk; Kyrieleis Otto; Frank Sabine; Renner Christian; Moroder Luis
Max-Planck-Institute fur Biochemie, Am Klopferspitz 18 A, 82152 Martinsried, Germany.
Chemistry (Weinheim an der Bergstrasse, Germany) (Germany) Aug 4 **2003** , 9 (15) p3703-14 , **ISSN:** 0947-6539--Print **Journal Code:** 9513783
Publishing Model Print
Document type: Journal Article; Research Support, Non-U.S. Gov't
Languages: ENGLISH
Main Citation Owner: NLM
Record type: MEDLINE; Completed

4/3/3 (Item 3 from file: 155)
Fulltext available through: STIC Full Text Retrieval Options
MEDLINE(R)
(c) format only 2009 Dialog. All rights reserved.
13516303 **PMID:** 10428813
The noncollagenous domain 1 of type X collagen. A novel motif for trimer and higher order multimer formation without a triple helix.

Zhang Y; Chen Q
Musculoskeletal Research Laboratory, Departments of Orthopaedics and Rehabilitation, The Pennsylvania State University College of Medicine, Hershey, Pennsylvania 17033, USA.
Journal of biological chemistry (UNITED STATES) Aug 6 **1999** , 274 (32) p22409-13 , **ISSN:** 0021-9258--Print **Journal Code:** 2985121R
Contract/Grant No.: AG000811; AG; NIA NIH HHS United States; AG14399; AG; NIA NIH HHS United States
Publishing Model Print

Document type: Journal Article; Research Support, U.S. Gov't, P.H.S.
Languages: ENGLISH
Main Citation Owner: NLM
Record type: MEDLINE; Completed

4/3/4 (Item 4 from file: 155)
Fulltext available through: STIC Full Text Retrieval Options
MEDLINE(R)
(c) format only 2009 Dialog. All rights reserved.
09214962 **PMID:** 2753905
The structure of avian type XII collagen. Alpha 1 (XII) chains contain 190-kDa non-triple helical amino-terminal domains and form homotrimeric molecules.

Dublet B; Oh S; Sugrue S P; Gordon M K; Gerecke D R; Olsen B R; van der Rest M
Genetics Unit, Shriners Hospital, Montreal, QC, Canada.
Journal of biological chemistry (UNITED STATES) Aug 5 **1989** , 264 (22) p13150-6 , **ISSN:** 0021-9258--Print
Journal Code: 2985121R
Contract/Grant No.: AR3620; AR; NIAMS NIH HHS United States; AR36819; AR; NIAMS NIH HHS United States
Publishing Model Print; Erratum in J Biol Chem 1990 Jan 15;265(2) 1231
Document type: Journal Article; Research Support, Non-U.S. Gov't; Research Support, U.S. Gov't, P.H.S.
Languages: ENGLISH
Main Citation Owner: NLM
Record type: MEDLINE; Completed

4/3/5 (Item 1 from file: 5)
Fulltext available through: STIC Full Text Retrieval Options
Biosis Previews(R)
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16087860 **Biosis No.:** 200100259699
Expression and characterization of human recombinant mannose binding lectin and its effects on human immunodeficiency virus escape mutants

Author: Hooker Bradley A (Reprint); Spear Gregory T (Reprint)
Author Address: Rush University, 1653 West Congress Parkway, Chicago, IL, 60612-3833, USA** USA
Journal: FASEB Journal 15 (5): p A1012 March 8, 2001 **2001**
Medium: print
Conference/Meeting: Annual Meeting of the Federation of American Societies for Experimental Biology on Experimental Biology 2001 Orlando, Florida, USA March 31-April 04, 2001; 20010331
ISSN: 0892-6638
Document Type: Meeting; Meeting Abstract
Record Type: Abstract
Language: English

4/3/6 (Item 2 from file: 5)
Fulltext available through: STIC Full Text Retrieval Options
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15626953 **Biosis No.:** 200000345266
Type XIII collagen forms homotrimers with three triple helical collagenous domains and its association into disulfide-bonded trimers is enhanced by prolyl 4-hydroxylase

Author: Snellman Anne; Keranen Marja-Riitta; Hagg Pasi O; Lamberg Arja; Hiltunen J Kalervo; Kivirikko Kari I; Pihlajaniemi Taina (Reprint)
Author Address: Dept. of Medical Biochemistry, University of Oulu, Kajaanintie 52 A, FIN-90220, Oulu, Finland**Finland
Journal: Journal of Biological Chemistry 275 (12): p 8936-8944 March 24, 2000 **2000**
Medium: print
ISSN: 0021-9258
Document Type: Article
Record Type: Abstract
Language: English

4/3/7 (Item 3 from file: 5)
Fulltext available through: STIC Full Text Retrieval Options
Biosis Previews(R)
(c) 2009 The Thomson Corporation. All rights reserved.
10279052 **Biosis No.:** 199090063531
TWO GENETICALLY DISTINCT TYPES OF COLLAGEN IN KURUMA PRAWN PENAEUS-JAPONICUS

Author: YOSHINAKA R (Reprint); MIZUTA S; ITOH Y; SATO M
Author Address: DEP FISHERIES, FAC AGRIC, KYOTO UNIV, SAKYO-KU, KYOTO 606, JAPAN**JAPAN
Journal: Comparative Biochemistry and Physiology B 96 (3): p 451-456 **1990**
ISSN: 0305-0491
Document Type: Article
Record Type: Abstract
Language: ENGLISH

4/3/8 (Item 4 from file: 5)
Fulltext available through: STIC Full Text Retrieval Options
Biosis Previews(R)
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06580157 **Biosis No.:** 198273084084
BIOSYNTHESIS OF PRO COLLAGEN PRO-ALPHA-1 V-2 PRO-ALPHA-2V BY CHICK TENDON FIBROBLASTS AND PRO COLLAGEN PRO-ALPHA-1 V-3 BY HAMSTER LUNG CELL CULTURES

Author: FESSLER L I (Reprint); ROBINSON W J; FESSLER J H

Author Address: MOLECULAR BIOL INST, UNIV OF CALIFORNIA AT LOS ANGELES, LOS ANGELES, CALIFORNIA 90024, USA**USA
Journal: Journal of Biological Chemistry 256 (18): p 9646-9651 **1981**
ISSN: 0021-9258
Document Type: Article
Record Type: Abstract
Language: ENGLISH

4/3/9 (Item 1 from file: 34)
Fulltext available through: STIC Full Text Retrieval Options
SciSearch(R) Cited Ref Sci
(c) 2009 The Thomson Corp. All rights reserved.
13000486 **Genuine Article#:** 840JO **No. References:** 33
Structure, stability and interactions of type I collagen with GLY349-CYS substitution in alpha 1(I) chain in a murine Osteogenesis Imperfecta model

Author: Kuznetsova NV; Forlino A; Cabral WA; Marini JC; Leikin S (REPRINT)
Corporate Source: NICHD,Sect Phys Biochem, NIH,Bldg 9,Rm 1E-127/Bethesda//MD/20892 (REPRINT); NICHD,Sect Phys Biochem, NIH,Bethesda//MD/20892; NICHD,BEMB, Sect Connect Tissue Disorders, NIH,Bethesda//MD/20892; Univ Pavia,Dipartimento Biochem A Castellani,I-27100 Pavia//Italy/ (leikins@mail.nih.gov)
Journal: MATRIX BIOLOGY , **2004** , V 23 , N2 (MAY) , P 101-112
ISSN: 0945-053X **Publication date:** 20040500
Publisher: ELSEVIER SCIENCE BV , PO BOX 211, 1000 AE AMSTERDAM, NETHERLANDS
Language: English **Document Type:** ARTICLE (ABSTRACT AVAILABLE)

4/3/10 (Item 2 from file: 34)
Fulltext available through: STIC Full Text Retrieval Options
SciSearch(R) Cited Ref Sci
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05486420 **Genuine Article#:** WB949 **No. References:** 37
BIOSYNTHESIS AND PROCESSING OF TYPE-XVI COLLAGEN IN HUMAN FIBROBLASTS AND SMOOTH-MUSCLE CELLS

Author: GRASSEL S; TIMPL R; TAN EML; CHU ML
Corporate Source: THOMAS JEFFERSON UNIV,DEPT DERMATOL & CUTANEOUSBIOL,233 S 10TH ST/PHILADELPHIA//PA/19107; THOMAS JEFFERSON UNIV,DEPT DERMATOL & CUTANEOUSBIOL/PHILADELPHIA//PA/19107; THOMAS JEFFERSON UNIV,DEPT BIOCHEM & MOL PHARMACOL/PHILADELPHIA//PA/19107; THOMAS JEFFERSON UNIV,DEPT PATHOL ANAT & CELL BIOL/PHILADELPHIA//PA/19107; MAX PLANCK INST BIOCHEM,DEPT PROT CHEM/D-8033 MARTINSRIED//GERMANY/
Journal: EUROPEAN JOURNAL OF BIOCHEMISTRY , **1996** , V 242 , N3 (DEC 15) , P 576-584
ISSN: 0014-2956
Language: ENGLISH **Document Type:** ARTICLE (Abstract Available)

4/3/11 (Item 1 from file: 399)
Fulltext available through: STIC Full Text Retrieval Options
CA SEARCH(R)
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131268629 **CA:** 131(20)268629c JOURNAL
Characterization of recombinant human type IX collagen. Association of .alpha. chains into homotrimeric and heterotrimeric molecules
Author: Pihlajamaa, Tero; Perala, Merja; Vuoristo, Mirka M.; Nokelainen, Minna; Bodo, Michael; Schulthess, Therese; Vuorio, Eero; Timpl, Rupert; Engel, Jurgen; Ala-Kokko, Leena
Location: Collagen Research Unit, Biocenter and Department of Medical Biochemistry, University of Oulu, FIN-90220, Oulu, Finland
Journal: J. Biol. Chem.
Date: 1999
Volume: 274 **Number:** 32 **Pages:** 22464-22468
CODEN: JBCHA3
ISSN: 0021-9258
Language: English
Publisher: American Society for Biochemistry and Molecular Biology

4/3/12 (Item 2 from file: 399)
Fulltext available through: STIC Full Text Retrieval Options
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128112051 **CA:** 128(10)112051k JOURNAL
Human recombinant .alpha.1(V) collagen chain. Homotrimeric assembly and subsequent processing
Author: Fichard, Agnes; Tillet, Emmanuelle; Delacoux, Frederic; Garrone, Robert; Ruggiero, Florence
Location: Institut de Biologie et Chimie des Proteines, CNRS UPR 412, Universite Claude Bernard, 69367, Lyon, Fr.
Journal: J. Biol. Chem.
Date: 1997
Volume: 272 **Number:** 48 **Pages:** 30083-30087
CODEN: JBCHA3
ISSN: 0021-9258
Language: English
Publisher: American Society for Biochemistry and Molecular Biology

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? d s

Set     Items   Description

S1       7311   S (COLLAGEN OR (GLY-X-Y) OR (GLY-XAA-YAA))(N20)(DISULFIDE OR DISULPHIDE
OR CYS OR CYSTEINE OR CYSTINE)
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S2          47   S S1 AND HOMOTRIMER
S3          21   RD  (unique items)
S4          12   S S3 AND PY<=2004


?  t s4/full/all
```

4/9/1 (Item 1 from file: 155)
Fulltext available through: STIC Full Text Retrieval Options
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15557976 **PMID:** 14516194

Procollagen VII self-assembly depends on site-specific interactions and is promoted by cleavage of the NC2 domain with procollagen C-proteinase.

Colombo Morgana; Brittingham Raymond J; Klement John F; Majsterek Ireneusz; Birk David E; Uitto Jouni; Fertala Andrzej
Department of Dermatology and Cutaneous Biology, Thomas Jefferson University, Philadelphia, Pennsylvania 19107, USA.
Biochemistry (United States) Oct 7 **2003** , 42 (39) p11434-42 , **ISSN:** 0006-2960--Print **Journal Code:** 0370623
Contract/Grant No.: P01AR38923; AR; NIAMS NIH HHS United States; R01AR048544; AR; NIAMS NIH HHS United States
Publishing Model Print
Document type: Journal Article; Research Support, U.S. Gov't, P.H.S.
Languages: ENGLISH
Main Citation Owner: NLM
Record type: MEDLINE; Completed
Subfile: INDEX MEDICUS
Procollagen VII is a **homotrimer** of 350-kDa proalpha1(VII) chains. Each chain has a central collagenous domain flanked by a noncollagenous amino-terminal NC1 domain and a carboxy-terminal NC2 domain. After secretion from cells, procollagen VII molecules form antiparallel dimers with a 60 nm overlap. These dimers are stabilized by disulfide bonds formed between cysteines present in the NC2 domain and cysteines present in the triple-helical domain. Electron microscopy has provided direct evidence for the existence of collagen VII dimers, but the dynamic process of dimer formation is not well understood. In the present study, we tested the hypothesis that, during dimer formation, the NC2 domain of one procollagen VII molecule specifically recognizes and binds to the triple-helical region adjacent to Cys-2625 of another procollagen VII molecule. We also investigated the role of processing of the NC2 domain by the procollagen C-proteinase/BMP-1 in dimer assembly. We engineered mini mouse procollagen VII variants consisting of intact NC1 and NC2 domains and a shortened triple helix in which the C-terminal region encompassing Cys-2625 was either preserved or substituted with the region encompassing Cys-1448 derived from the N-terminal part of the triple-helical domain. The results indicate that procollagen VII self-assembly depends on site-specific interactions between the NC2 domain and the triple-helical region adjacent to Cys-2625 and that this process is promoted by the cleavage of the NC2 by procollagen C-proteinase/BMP1.
Descriptors: *Bone Morphogenetic Proteins--metabolism--ME; *Collagen Type VII--chemistry --CH; *Collagen Type VII--metabolism--ME; *Metalloendopeptidases --metabolism--ME **;** Amino Acid Sequence; Animals; Binding Sites; Biotin--analogs and derivatives--AA; Biotin--metabolism--ME; Bone Morphogenetic Protein 1; Cloning, Molecular; **Collagen** Type VII--genetics--GE; Colorimetry --methods--MT; **Cysteine**--chemistry--CH; **Cysteine**--genetics --GE; Dimerization; Disulfides--chemistry--CH; Humans; Mice; Microscopy, Electron; Models, Molecular;

Molecular Sequence Data; Protein Binding; Protein Structure, Secondary; Protein Structure, Tertiary; Recombinant Proteins--chemistry--CH; Recombinant Proteins--genetics--GE; Recombinant Proteins--metabolism--ME; Sequence Deletion
CAS Registry No.: 0 (Bone Morphogenetic Proteins); 0 (Collagen Type VII); 0 (Disulfides); 0 (Recombinant Proteins); 52-90-4 (Cysteine); 58-85-5 (Biotin)
Enzyme No.: EC 3.4.24.- (Metalloendopeptidases); EC 3.4.24.19 (BMP1 protein, human) ; EC 3.4.24.19 (Bmp1 protein, mouse); EC 3.4.24.19 (Bone Morphogenetic Protein 1)
Record Date Created: 20030930
Record Date Completed: 20031029

4/9/2 (Item 2 from file: 155)
Fulltext available through: STIC Full Text Retrieval Options
MEDLINE(R)
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15473291 **PMID:** 12898697
The role of cystine knots in collagen folding and stability, part II. Conformational properties of (Pro-Hyp-Gly)n model trimers with N- and C-terminal collagen type III cystine knots.

Barth Dirk; Kyrieleis Otto; Frank Sabine; Renner Christian; Moroder Luis
Max-Planck-Institute fur Biochemie, Am Klopferspitz 18 A, 82152 Martinsried, Germany.
Chemistry (Weinheim an der Bergstrasse, Germany) (Germany) Aug 4 **2003** , 9 (15) p3703-14 , **ISSN:** 0947-6539--Print **Journal Code:** 9513783
Publishing Model Print
Document type: Journal Article; Research Support, Non-U.S. Gov't
Languages: ENGLISH
Main Citation Owner: NLM
Record type: MEDLINE; Completed
Subfile: INDEX MEDICUS
In mature **collagen** type III the **homotrimer** is C-terminally cross-linked by an interchain **cystine** knot consisting of three **disulfide** bridges of unknown connectivity. This cystine knot with two adjacent cysteine residues on each of the three alpha chains has recently been used for the synthesis and expression of model homotrimers. To investigate the origin of correct interchain cysteine pairings, (Pro-Hyp-Gly)(n) peptides of increasing triplet number and containing the biscysteinyl sequence C- and N-terminally were synthesised. The possibilities were that this origin may be thermodynamically coupled to the formation of the collagen triple helix as happens in the oxidative folding of proteins, or it could represent a post-folding event. Only with five triplets, which is known to represent the minimum number for self-association of collagenous peptides into a triple helix, air-oxidation produces the **homotrimer** in good yields (70 %), the rest being intrachain oxidised monomers. Increasing the number of triplets has no effect on yield suggesting the formation of kinetically trapped intermediates, which are not reshuffled by the glutathione redox buffer. N-terminal incorporation of the cystine knot is significantly less efficient in the homotrimerisation step and also in terms of triple-helix stabilisation. Compared to an artificial C-terminal **cystine** knot consisting of two interchain **disulfide** bridges, the **collagen** type III **cystine** knot produces collagenous homotrimers of remarkably high thermostability, although the concentration-independent refolding rates are not affected by the type of disulfide bridging. Since the natural cystine knot allows ready access to homotrimeric collagenous peptides of significantly enhanced triple-helix thermostability it may well represent a promising approach for the preparation of **collagen**-like innovative biomaterials. Conversely, the more laborious

regioselectively formed artificial **cystine** knot still represents the only synthetic strategy for heterotrimeric collagenous peptides.
Descriptors: ***Collagen** Type III--chemistry--CH; ***Cystine**--chemistry--CH; *Oligopeptides--chemistry--CH **;** Amino Acid Sequence; Crystallization; Hot Temperature; Kinetics; Models, Molecular; Molecular Sequence Data; Nuclear Magnetic Resonance, Biomolecular; Oxidation-Reduction; Protein Conformation; Protein Denaturation; Protein Folding; Thermodynamics
CAS Registry No.: 0 (Collagen Type III); 0 (Oligopeptides); 56-89-3 (Cystine)
Record Date Created: 20030804
Record Date Completed: 20030926

4/9/3 (Item 3 from file: 155)
Fulltext available through: STIC Full Text Retrieval Options
MEDLINE(R)
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13516303 **PMID:** 10428813
The noncollagenous domain 1 of type X collagen. A novel motif for trimer and higher order multimer formation without a triple helix.

Zhang Y; Chen Q
Musculoskeletal Research Laboratory, Departments of Orthopaedics and Rehabilitation, The Pennsylvania State University College of Medicine, Hershey, Pennsylvania 17033, USA.
Journal of biological chemistry (UNITED STATES) Aug 6 **1999** , 274 (32) p22409-13 , **ISSN:** 0021-9258--Print **Journal Code:** 2985121R
Contract/Grant No.: AG000811; AG; NIA NIH HHS United States; AG14399; AG; NIA NIH HHS United States
Publishing Model Print
Document type: Journal Article; Research Support, U.S. Gov't, P.H.S.
Languages: ENGLISH
Main Citation Owner: NLM
Record type: MEDLINE; Completed
Subfile: INDEX MEDICUS
In this study, we test the hypothesis that the carboxyl noncollagenous (NC1) domain of collagen X is sufficient to direct multimer formation without a triple helix. Two peptides containing the NC1 domain of avian collagen X have been synthesized using a bacterial expression system and their properties characterized. One peptide consists only of the NC1 domain, and the other is a chimeric molecule with a noncollagenous A domain of matrilin-1 fused to the N terminus of NC1. The NC1 peptide alone forms a 45-kDa trimer under native conditions, suggesting that NC1 contains all the information for trimerization without any triple helical residues. This trimeric association is highly thermostable without intermolecular **disulfide** bonds. This indicates that the NC1 domain contributes to the remarkable structural stability of **collagen** X. Chemical cross-linking of the NC1 trimer results in a series of varying sized multimers, the smallest of which is a trimer. Therefore the NC1 trimer is sufficient to form higher order multimers. The chimeric A-NC1 peptide forms a **homotrimer** by itself, and a series of heterotrimers with the NC1 peptide via the NC1 domain. Thus the NC1(X) domain directs multimer formation, even in a noncollagenous molecule.
Descriptors: *Collagen--chemistry--CH; *Peptide Fragments--chemistry--CH **;** Animals; Birds; Collagen--genetics--GE; Collagen--metabolism--ME; Cross-Linking Reagents; Extracellular Matrix Proteins--chemistry--CH; Extracellular Matrix Proteins--genetics--GE; Extracellular Matrix Proteins --metabolism--ME; Glycoproteins--chemistry--CH; Glycoproteins--genetics --GE; Glycoproteins--metabolism--ME; Hot Temperature; Osteochondrodysplasias--etiology--ET; Peptide Fragments--genetics--GE; Peptide Fragments--metabolism--ME;

Protein Binding; Protein Conformation; Protein Denaturation; Protein Folding; Recombinant Fusion Proteins --chemistry--CH; Recombinant Fusion Proteins--metabolism--ME

CAS Registry No.: 0 (Cross-Linking Reagents); 0 (Extracellular Matrix Proteins); 0 (Glycoproteins); 0 (Peptide Fragments); 0 (Recombinant Fusion Proteins); 0 (cartilage matrix protein); 9007-34-5 (Collagen)
Record Date Created: 19990902
Record Date Completed: 19990902

4/9/4 (Item 4 from file: 155)
Fulltext available through: STIC Full Text Retrieval Options
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09214962 **PMID:** 2753905
The structure of avian type XII collagen. Alpha 1 (XII) chains contain 190-kDa non-triple helical amino-terminal domains and form homotrimeric molecules.

Dublet B; Oh S; Sugrue S P; Gordon M K; Gerecke D R; Olsen B R; van der Rest M
Genetics Unit, Shriners Hospital, Montreal, QC, Canada.
Journal of biological chemistry (UNITED STATES) Aug 5 **1989** , 264 (22) p13150-6 , **ISSN:** 0021-9258--Print
Journal Code: 2985121R
Contract/Grant No.: AR3620; AR; NIAMS NIH HHS United States; AR36819; AR; NIAMS NIH HHS United States
Publishing Model Print; Erratum in J Biol Chem 1990 Jan 15;265(2) 1231
Document type: Journal Article; Research Support, Non-U.S. Gov't; Research Support, U.S. Gov't, P.H.S.
Languages: ENGLISH
Main Citation Owner: NLM
Record type: MEDLINE; Completed
Subfile: INDEX MEDICUS
The monoclonal antibody 75d7, specific for type XII collagen (Sugrue, S.P., Gordon, M.K., Seyer, J., Dublet, B., van der Rest, M., and Olsen, B. R. (1989) J. Cell Biol., in press), was used to characterize the intact form of type XII collagen from chick embryo leg tendons. On an immunoblot of a 6% polyacrylamide gel of tendon extracts, one sharp band is recognized by the antibody at Mr = 220,000, while two fuzzy and poorly resolved bands are seen at Mr = 270,000 and Mr = 290,000. By immunoprecipitation of radiolabeled tendon culture media and electrophoresis of the precipitated material, bands with the same mobilities are observed, indicating that type XII collagen is not proteolytically processed in the extracellular space. Type XII collagen was extracted from tendons with 1 M NaCl in a Tris-HCl buffer and partially purified by concanavalin A-Sepharose and gel permeation chromatographies, using dot immunoblots to monitor the purification. Fractions highly enriched in bacterial collagenase-sensitive proteins with the same electrophoretic properties as type XII collagen were obtained. These fractions did not stain with Alcian blue and neither they nor the immunostained type XII **collagen** were affected by chondroitinase ABC digestion, indicating that type XII **collagen** is not a proteoglycan. A **disulfide**-bonded trimeric CNBr peptide was isolated by affinity chromatography on an antibody column and further purified by gel electrophoresis. Its NH2-terminal amino acid sequence was shown to be unique, demonstrating that type XII collagen is a **homotrimer** [alpha 1 (XII)]3. After bacterial collagenase digestion, both the immunopurified radiolabeled preparation and the purified tendon extract fraction showed by gel electrophoresis the presence of a large disulfide-bonded, 3 x 190-kDa, collagenase-resistant domain. Rotary shadowing and electron microscopy of the purified type XII fraction demonstrated that the molecule has the structure of a cross consisting of a 75 nm collagenase-sensitive tail, a central

globule, and three 60 nm arms each ending in a small globule. After heat denaturation and renaturation, only a very large globule can be seen, attached to the triple helical tail. These results show that type XII collagen has a unique structure and is different from the other matrix constituents described so far.
Descriptors: *Collagen--isolation and purification--IP ; Amino Acid Sequence; Animals; Chick Embryo; Collagen--biosynthesis--BI; Collagen--ultrastructure--UL; Fibroblasts--metabolism--ME; Microscopy, Electron; Molecular Sequence Data; Molecular Weight; Protein Conformation; Proteoglycans; Tendons--analysis--AN
CAS Registry No.: 0 (Proteoglycans); 9007-34-5 (Collagen)
Record Date Created: 19890907
Record Date Completed: 19890907

4/9/5 (Item 1 from file: 5)
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16087860 **Biosis No.:** 200100259699
Expression and characterization of human recombinant mannose binding lectin and its effects on human immunodeficiency virus escape mutants

Author: Hooker Bradley A (Reprint); Spear Gregory T (Reprint)
Author Address: Rush University, 1653 West Congress Parkway, Chicago, IL, 60612-3833, USA** USA
Journal: FASEB Journal 15 (5): p A1012 March 8, 2001 **2001**
Medium: print
Conference/Meeting: Annual Meeting of the Federation of American Societies for Experimental Biology on Experimental Biology 2001 Orlando, Florida, USA March 31-April 04, 2001; 20010331
ISSN: 0892-6638
Document Type: Meeting; Meeting Abstract
Record Type: Abstract
Language: English

Abstract: Mannose binding lectin (MBL) plays an important role in innate immunity by binding to high-mannose and N-acetylglucosamine moieties on the surface of pathogens. MBL facilitates pathogen inactivation through opsonization and complement activation. MBL has been shown to bind to both T cell laboratory-adapted (TCLA) and primary isolates of HIV-1 and to inhibit infection by TCLA HIVIIIB. Previous studies have selected HIV escape mutants using various monoclonal antibodies to gp120. While the appearance of MBL-resistant influenza virus mutants has been well documented, the role of MBL in producing HIV-1 escape mutants has yet to be investigated. Higher-order oligomerization of MBL subunits is necessary for its physiologic role. **Homotrimer** formation of 31 kDa subunits through interactions in the **collagen**-like domain by **disulfide** bonds appears to be important for its function. MBL homotrimers may further oligomerize to form complexes ranging from 200 - 600 kDa. It has been hypothesized that proper post-translational modification is necessary for formation of higher-order MBL oligomers. Thus, the goal of this study was to optimize expression of recombinant MBL (rMBL) with proper oligomerization and to determine its effects in the generation of primary isolate HIV-1 escape mutants. Recombinant MBL was expressed in 293T cells by transient transfection using hMBL/pCDNA3.1(+) and hMBL/pCI-neo expression vector constructs. Western blot analysis using a monoclonal antibody to human MBL confirmed that rMBL was produced in the culture supernatants from both constructs and that it retained higher-order oligomeric structure comparable to MBL purified from human serum. Stable cell lines utilizing both constructs were then created using COS-7 cells for

continuous rMBL expression. This study indicates that rMBL contained higher-order oligomeric structure and can thus be used for selection of HIV-1 escape mutants.

Registry Numbers: 7512-17-6: N-acetylglucosamine
DESCRIPTORS:
Major Concepts: Biochemistry and Molecular Biophysics; Infection
Biosystematic Names: Cercopithecidae--Primates, Mammalia, Vertebrata, Chordata, Animalia; Orthomyxoviridae--Negative Sense ssRNA Viruses, Viruses, Microorganisms; Retroviridae--DNA and RNA Reverse Transcribing Viruses, Viruses, Microorganisms
Organisms: COS-7 cell line (Cercopithecidae)--monkey kidney neoplasm cells; influenza virus (Orthomyxoviridae)--pathogen; HIV-1 {human immunodeficiency virus 1} (Retroviridae)--escape mutant, pathogen; human immunodeficiency virus {HIV } (Retroviridae)--pathogen
Common Taxonomic Terms: Animals; Chordates; Mammals; Nonhuman Mammals; Nonhuman Vertebrates; Nonhuman Primates; Primates; Vertebrates; Negative Sense Single-Stranded RNA Viruses; DNA and RNA Reverse Transcribing Viruses; Microorganisms; Viruses
Diseases: HIV infection {human immunodeficiency virus infection}--immune system disease, viral disease; influenza virus infection--viral disease
Mesh Terms: HIV Infections (MeSH); Influenza (MeSH)
Chemicals & Biochemicals: N-acetylglucosamine; collagen-like domain; gp120; human recombinant mannose binding lectin; monoclonal antibodies
Miscellaneous Terms: Concept Codes: Meeting Abstract; Meeting Abstract
Concept Codes:
10060 Biochemistry studies - General
00520 General biology - Symposia, transactions and proceedings
02506 Cytology - Animal
10064 Biochemistry studies - Proteins, peptides and amino acids
10068 Biochemistry studies - Carbohydrates
33506 Virology - Animal host viruses
34502 Immunology - General and methods
34508 Immunology - Immunopathology, tissue immunology
36006 Medical and clinical microbiology - Virology
Biosystematic Codes:
86205 Cercopithecidae
03505 Orthomyxoviridae
03305 Retroviridae

4/9/6 (Item 2 from file: 5)
Fulltext available through: STIC Full Text Retrieval Options
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15626953 **Biosis No.:** 200000345266
Type XIII collagen forms homotrimers with three triple helical collagenous domains and its association into disulfide-bonded trimers is enhanced by prolyl 4-hydroxylase

Author: Snellman Anne; Keranen Marja-Riitta; Hagg Pasi O; Lamberg Arja; Hiltunen J Kalervo; Kivirikko Kari I; Pihlajaniemi Taina (Reprint)
Author Address: Dept. of Medical Biochemistry, University of Oulu, Kajaanintie 52 A, FIN-90220, Oulu,

Finland**Finland
Journal: Journal of Biological Chemistry 275 (12): p 8936-8944 March 24, 2000 **2000**
Medium: print
ISSN: 0021-9258
Document Type: Article
Record Type: Abstract
Language: English

Abstract: Type XIII collagen is a type II transmembrane protein predicted to consist of a short cytosolic domain, a single transmembrane domain, and three collagenous domains flanked by noncollagenous sequences. Previous studies on mRNAs indicate that the structures of the collagenous domain closest to the cell membrane, COL1, the adjacent noncollagenous domain, NC2, and the C-terminal domains COL3 and NC4 are subject to alternative splicing. In order to extend studies of type XIII collagen from cDNAs to the protein level we have produced it in insect cells by means of baculoviruses. Type XIII

collagen alpha chains were found to associate into **disulfide**-bonded trimers, and hydroxylation of proline residues dramatically enhanced this association. This protein contains altogether eight cysteine residues, and interchain disulfide bonds could be located in the NC1 domain and possibly at the junction of COL1 and NC2, while the two **cysteine** residues in NC4 are likely to form intrachain bonds. Pepsin and trypsin/chymotrypsin digestions indicated that the type XIII **collagen** alpha chains form homotrimers whose three collagenous domains are in triple helical conformation. The thermal stabilities (Tm) of the COL1, COL2, and COL3 domains were 38, 49 and 40 degreeC, respectively. The Tm of the central collagenous domain is unusually high, which in the light of this domain being invariant in terms of alternative splicing suggests that the central portion of the molecule may have an important role in the stability of the molecule. All in all, most of the type XIII collagen ectodomain appears to be present in triple helical conformation, which is in clear contrast to the short or highly interrupted triple helical domains of the other known collagenous transmembrane proteins.

DESCRIPTORS:
Major Concepts: Biochemistry and Molecular Biophysics; Membranes--Cell Biology
Chemicals & Biochemicals: mRNA; prolyl 4-hydroxylase; transmembrane proteins; type XIII collagen--disulfide-bonded trimer association, ectodomain, helical collagenous domains, **homotrimer** formation
Concept Codes:
10508 Biophysics - Membrane phenomena
10060 Biochemistry studies - General
10062 Biochemistry studies - Nucleic acids, purines and pyrimidines
10802 Enzymes - General and comparative studies: coenzymes

4/9/7 (Item 3 from file: 5)
Fulltext available through: STIC Full Text Retrieval Options
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10279052 **Biosis No.:** 199090063531
TWO GENETICALLY DISTINCT TYPES OF COLLAGEN IN KURUMA PRAWN PENAEUS-JAPONICUS

Author: YOSHINAKA R (Reprint); MIZUTA S; ITOH Y; SATO M
Author Address: DEP FISHERIES, FAC AGRIC, KYOTO UNIV, SAKYO-KU, KYOTO 606, JAPAN**JAPAN

Journal: Comparative Biochemistry and Physiology B 96 (3): p 451-456 **1990**
ISSN: 0305-0491
Document Type: Article
Record Type: Abstract
Language: ENGLISH

Abstract: 1. At least three types of collagen was found in the muscle of kuruma prawn Penaeus japonicus. Two of them, called AR-I and AR-II collagens, were isolated from the pepsin-solubilized collagen. 2. The subunit composition of AR-I collagen, major molecular species, was proved to be (.alpha.1)3, **homotrimer**. Its amino acid composition was similar to that of Type V **collagen** rather than Type I **collagen**. 3. AR-II **collagen**, minor molecular species, was found to have **disulfide** bonds in the molecule. Its amino acid composition was similar to that of AR-I **collagen**. The sodium dodecyl sulfate-polyacrylamide gel electrophoresis pattern of AR-II collagen suggested the complexity of its structure.

Descriptors: MUSCLE AMINO ACID COMPOSITION SDS-POLYACRYLAMIDE GEL ELECTROPHORESIS
DESCRIPTORS:
Major Concepts: Biochemistry and Molecular Biophysics; Genetics; Muscular System--Movement and Support; Physiology
Biosystematic Names: Malacostraca--Crustacea, Arthropoda, Invertebrata, Animalia
Common Taxonomic Terms: Animals; Arthropods; Crustaceans; Invertebrates
Concept Codes:
03506 Genetics - Animal
10054 Biochemistry methods - Proteins, peptides and amino acids
10064 Biochemistry studies - Proteins, peptides and amino acids
10504 Biophysics - Methods and techniques
10506 Biophysics - Molecular properties and macromolecules
17504 Muscle - Physiology and biochemistry
64054 Invertebrata:comparative, experimental morphology, physiology and pathology - Arthropoda: crustacea
Biosystematic Codes:
75112 Malacostraca

4/9/8 (Item 4 from file: 5)
Fulltext available through: STIC Full Text Retrieval Options
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06580157 **Biosis No.:** 198273084084

BIOSYNTHESIS OF PRO COLLAGEN PRO-ALPHA-1 V-2 PRO-ALPHA-2V BY CHICK TENDON FIBROBLASTS AND PRO COLLAGEN PRO-ALPHA-1 V-3 BY HAMSTER LUNG CELL CULTURES

Author: FESSLER L I (Reprint); ROBINSON W J; FESSLER J H
Author Address: MOLECULAR BIOL INST, UNIV OF CALIFORNIA AT LOS ANGELES, LOS ANGELES, CALIFORNIA 90024, USA**USA
Journal: Journal of Biological Chemistry 256 (18): p 9646-9651 **1981**
ISSN: 0021-9258
Document Type: Article
Record Type: Abstract
Language: ENGLISH

Abstract: Chick embryo tendon fibroblasts were cultured with [3H]amino acids for 4, 8 and 24 h. Procollagen V was found in the cell layer. The chain composition predominantly corresponded to [(pro.alpha.1 V)2 pro.alpha.2 V], and a small proportion existed as the **disulfide**-linked heterotrimer and dimer. It was progressively converted to p-**collagen** V and **collagen** V which were found both in the cell layer and in the culture medium. Processing proceeded as previously described for chick tissues including the attachment of a noncollagenous peptide-P to the p.alpha.2 V chain. The smallest chains were also larger than .alpha. V(pepsin). Cultures of Chinese hamster lung cells (clone HT1) synthesized the **homotrimer** (pro.alpha.1 V)3. This lacked intermolecular disulfide bridges, was not processed, and remained associated with the cell layer. The chick fibroblast-conditioned culture media contained an enzymatic activity which converted procollagen V of blood vessels to p-**collagen** V. This p- **collagen** V lacked the noncollagenous peptide-P which is normally found associated by **disulfide** linkage to the p.alpha.2 V chain. This enzymatic activity converted the hamster cell (pro.alpha.1 V)3 to p-collagen V. Arginine inhibited this processing step. The processing of procollagen V apparently occurs extracellularly and is defective in the hamster lung cell cultures. The type V molecules apparently remain largely associated with the cell layer. The previously proposed parallel biosynthesis of homo- and heteroprocollagens V and their subsequent processing in tissues are consistent with the present results.

Descriptors: EMBRYO
DESCRIPTORS:
Major Concepts: Biochemistry and Molecular Biophysics; Cell Biology; Development; Metabolism; Respiratory System--Respiration; Skeletal System--Movement and Support
Biosystematic Names: Galliformes--Aves, Vertebrata, Chordata, Animalia; Cricetidae--Rodentia, Mammalia, Vertebrata, Chordata, Animalia
Common Taxonomic Terms: Birds; Animals; Chordates; Mammals; Nonhuman Vertebrates; Nonhuman Mammals; Rodents; Vertebrates
Concept Codes:
02508 Cytology - Human
10064 Biochemistry studies - Proteins, peptides and amino acids
10804 Enzymes - Methods
13012 Metabolism - Proteins, peptides and amino acids
16001 Respiratory system - General and methods
16004 Respiratory system - Physiology and biochemistry
18001 Bones, joints, fasciae, connective and adipose tissue - General and methods
18004 Bones, joints, fasciae, connective and adipose tissue - Physiology and biochemistry
25502 Development and Embryology - General and descriptive
25508 Development and Embryology - Morphogenesis
32600 In vitro cellular and subcellular studies
Biosystematic Codes:
85536 Galliformes
86310 Cricetidae

4/9/9 (Item 1 from file: 34)
Fulltext available through: STIC Full Text Retrieval Options
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13000486 **Genuine Article#:** 840JO **Number of References:** 33

Structure, stability and interactions of type I collagen with GLY349-CYS substitution in alpha 1(I) chain in a murine Osteogenesis Imperfecta model

Author: Kuznetsova NV; Forlino A; Cabral WA; Marini JC; Leikin S (REPRINT)
Corporate Source: NICHD,Sect Phys Biochem, NIH,Bldg 9,Rm 1E-127/Bethesda//MD/20892 (REPRINT); NICHD,Sect Phys Biochem, NIH,Bethesda//MD/20892; NICHD,BEMB, Sect Connect Tissue Disorders, NIH,Bethesda//MD/20892; Univ Pavia,Dipartimento Biochem A Castellani,I-27100 Pavia//Italy/ (leikins@mail.nih.gov)
Journal: MATRIX BIOLOGY , **2004** , V 23 , N2 (MAY) , P 101-112
ISSN: 0945-053X **Publication date:** 20040500
Publisher: ELSEVIER SCIENCE BV , PO BOX 211, 1000 AE AMSTERDAM, NETHERLANDS
Language: English **Document Type:** ARTICLE
Geographic Location: USA; Italy
Journal Subject Category: BIOCHEMISTRY & MOLECULAR BIOLOGY; CELL BIOLOGY
Abstract: Here we report the structural and functional studies of collagen from the Brt1 mouse, a heterozygous knock-in model for Osteogenesis Imperfecta, which has a G349C substitution introduced in one co11a1 allele. We observed that 25 +/- 5% of alpha1(I) chains in different tissues and in different extracts from matrix deposited by cultured cells were S-S-linked mutant dimers. Apparently mutant and normal molecules are equally well incorporated into the matrix and they form mature covalent crosslinks with the same efficiency. We found different extents of post-translational overmodification of mutant molecules in different tissues. but we found no consistent differences between lethal and non-lethal animals. We did not detect any changes in the thermal stability or rate of thermal denaturation of mutant collagen. We also did not detect any changes in collagen-collagen recognition and interactions except for disruption of quasi-crystalline lateral packing of molecules in tendons from some, mostly prepubertal. mutant animals. In contrast, alpha1(I)(3) collagen from the oim mouse-the only other non-lethal murine OI model studied by similar techniques-has altered stability, fibrillogenesis, collagen-collagen interactions and produces a more consistent and more pronounced disruption of tendon crystallinity. Nevertheless, while the G349C substitution causes moderate or lethal OI, heterozygous oim mice are much less affected. Overall, our results suggest that OI symptoms and phenotype variation in G349C animals are related to abnormal interactions of mutant collagen helices with other matrix molecules or abnormal function of osteoblasts rather than to abnormal structure, physical properties or interactions between mutant collagen helices. (C) 2004 Elsevier B.V./Intemational Society of Matrix Biology. All rights reserved.

Descriptors--Author Keywords: Osteogenesis Imperfecta ; collagen-collagen interactions ; thermal stability
Identifiers-- KeyWord Plus(R): FIBRILLAR COLLAGENS; THERMAL-STABILITY; MUTATIONS; DISEASES; FIBRILLOGENESIS; TEMPERATURE; **HOMOTRIMER;** PHENOTYPE; INVITRO; SYSTEM
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4/9/10 (Item 2 from file: 34)
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05486420 **Genuine Article#:** WB949 **Number of References:** 37

BIOSYNTHESIS AND PROCESSING OF TYPE-XVI COLLAGEN IN HUMAN FIBROBLASTS AND SMOOTH-MUSCLE CELLS

Author: GRASSEL S; TIMPL R; TAN EML; CHU ML
Corporate Source: THOMAS JEFFERSON UNIV,DEPT DERMATOL & CUTANEOUSBIOL,233 S 10TH ST/PHILADELPHIA//PA/19107; THOMAS JEFFERSON UNIV,DEPT DERMATOL & CUTANEOUSBIOL/PHILADELPHIA//PA/19107; THOMAS JEFFERSON UNIV,DEPT BIOCHEM & MOL PHARMACOL/PHILADELPHIA//PA/19107; THOMAS JEFFERSON UNIV,DEPT PATHOL ANAT & CELL BIOL/PHILADELPHIA//PA/19107; MAX PLANCK INST BIOCHEM,DEPT PROT CHEM/D-8033 MARTINSRIED//GERMANY/
Journal: EUROPEAN JOURNAL OF BIOCHEMISTRY , **1996** , V 242 , N3 (DEC 15) , P 576-584
ISSN: 0014-2956
Language: ENGLISH **Document Type:** ARTICLE
Geographic Location: USA; GERMANY
Subfile: Science Citation Index; SciSearch; CC LIFE--Current Contents, Life Sciences
Journal Subject Category: BIOCHEMISTRY & MOLECULAR BIOLOGY
Abstract: The alpha 1(XVI) collagen chain, recently identified by cDNA cloning, exhibits structural similarity to a subgroup of collagens that associate with collagen fibrils. Recombinant alpha 1(XVI) collagen chains produced in embryonic kidney cells are able to form stable homotrimers, which are rapidly converted into smaller polypeptides

after secretion into the culture medium. In this study, we investigated the biosynthesis of native type XVI collagen by immunoprecipitation of metabolically labeled human cells. Dermal fibroblasts and arterial smooth muscle cells were precipitated with three antibodies raised against distinct regions in the N- and C-terminal part of the human alpha 1(XVI) **collagen** chain. A **disulfide**-bonded polypeptide of 220 kDa was obtained from the culture medium, cells and extracellular matrix with all three antibodies. This polypeptide is sensitive to bacterial collagenase digestion and partially resistant to pepsin digestion, suggesting that it is the endogenous alpha 1(XVI) collagen chain. Pulse/chase experiments showed that the newly synthesized alpha 1(XVI) chains are secreted into the medium and deposited in the extracellular matrix in a time-dependent manner. Unlike the recombinant chain, the native type XVI collagen does not undergo extensive proteolytic processing upon secretion. Both cell types deposit a substantial amount of the newly synthesized alpha 1(XVI) chain into the extracellular matrix, in which the 220-kDa polypeptide is the only product immunoprecipitated. There is little evidence for the presence of another constituent chain. The data are consistent with a homotrimeric chain composition for type XVI collagen. No apparent difference exists in the rate of synthesis and secretion between fibroblasts and smooth muscle cells. Indirect immunofluorescence microscopy showed an extracellular distribution of type XVI collagen, which is located close to cells but not associated with fibrillar structures.

Descriptors--Author Keywords: COLLAGEN XVI ; **HOMOTRIMER ;** EXTRACELLULAR MATRIX ; IMMUNOPRECIPITATION ; BIOSYNTHESIS
Identifiers-- KeyWords Plus: HUMAN ALPHA-1(XVI) COLLAGEN; MATRIX GENE-EXPRESSION; TRIPLE-HELICAL REGION; VONWILLEBRAND-FACTOR; MOLECULAR-WEIGHT; IX COLLAGEN; VI COLLAGEN; CHAIN; PROTEINS; DOMAINS
Research Fronts: 95-7327 002 (TYPE-XV COLLAGEN TRANSCRIPTS; LYSYL OXIDASE MESSENGER-RNA; PROCOLLAGEN C-PEPTIDASE)
95-3190 001 (INCREASED ABUNDANCE OF SPECIFIC SKELETAL-MUSCLE PROTEIN-TYROSINE PHOSPHATASES; ALPHA-B-CRYSTALLIN EXPRESSION)

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Characterization of recombinant human type IX collagen. Association of .alpha. chains into homotrimeric and heterotrimeric molecules

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Disulfide group... Molecular association... Molecular cloning... Trimerization ...
assocn. of recombinant human type IX collagen .alpha. chains into homotrimeric and heterotrimeric mols.
Quaternary structure ...
protein; assocn. of recombinant human type IX collagen .alpha. chains into homotrimeric and heterotrimeric mols.
Collagens,biological studies ...
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Human recombinant .alpha.1(V) collagen chain. Homotrimeric assembly and subsequent processing
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Identifiers: collagen type V homotrimer assembly processing
Descriptors:
Conformation(protein)... Disulfide bond... Post-translational processing... Self-association... Type V collagen ...
homotrimeric assembly and subsequent processing of human recombinant type V collagen .alpha.1 chain.
Type V collagen ...
procollagen; homotrimeric assembly and subsequent processing of human recombinant type V collagen .alpha.1 chain.

Quaternary structure(protein) ...
triple helix; homotrimeric assembly and subsequent processing of human recombinant type V collagen .alpha.1 chain.

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